

Private Markets Pacing Model

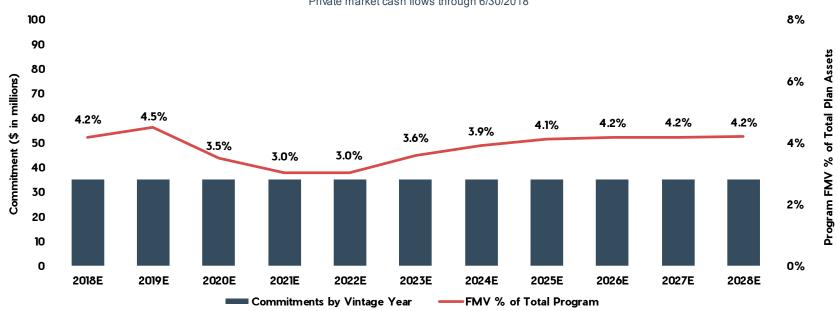
Background

- Pacing plans for private markets asset classes can help to forecast cash needs and enable vintage year diversification.
- The Private Markets Pacing Model detailed in this document is comprised of private debt, real estate, and real assets.
- As of June 30, 2018, the market value of the private markets program ex private equity was \$255 million, or about 12.3% of the Retirement Plan's assets.
 - Total Private Debt stood at \$77.4 million, or 3.7% of the total Retirement System.
 - Total Real Estate stood at \$153.8 million, or 7.4% of the total Retirement System.
 - Total Private Real Assets (ex-Real Estate) stood at \$23.7 million, or 1.1% of the total Retirement System.
- The asset allocation adopted during 2018 includes a steady level of Total Private Assets (30%) in the Retirement System. In this document, we have modeled the contributions that would be required to reach and maintain the target allocations within private debt, real estate, and real assets. We recommend using this pacing only as a guide, with actual investments dependent on high quality investment manager availability and market environment.



Private Debt Portfolio Allocation Model

Private market cash flows through 6/30/2018



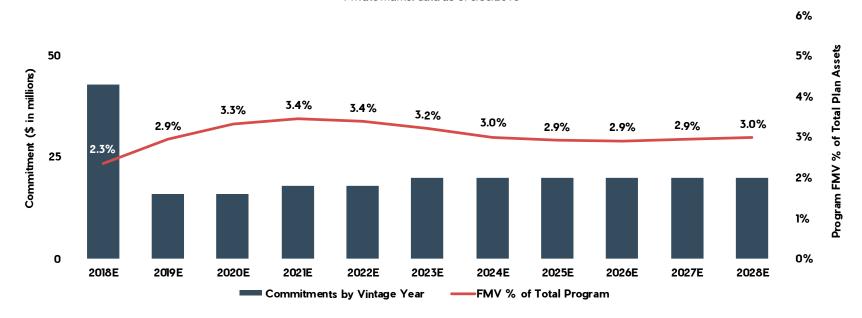
(\$ in millions)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Private Market Investments											
Commitments by Vintage Year	35	35	35	35	35	35	35	35	35	35	35
Contributions	-16	-34	-17	-24	-28	-31	-33	-34	-34	-34	-35
Distributions	13	27	41	37	30	19	26	35	40	42	43
Net Cash Flow	-2	-7	24	13	2	-12	-6	1	6	8	8
Fair Market Value	89	100	81	73	76	94	107	113	115	116	116
FMV % of Total Program	4.2%	4.5%	3.5%	3.0%	3.0%	3.6%	3.9%	4.1%	4.2%	4.2%	4.2%

• We recommend the System commit approximately \$35 million per year to private debt strategies.



Real Estate Portfolio Allocation Model

Private market data as of 6/30/2018



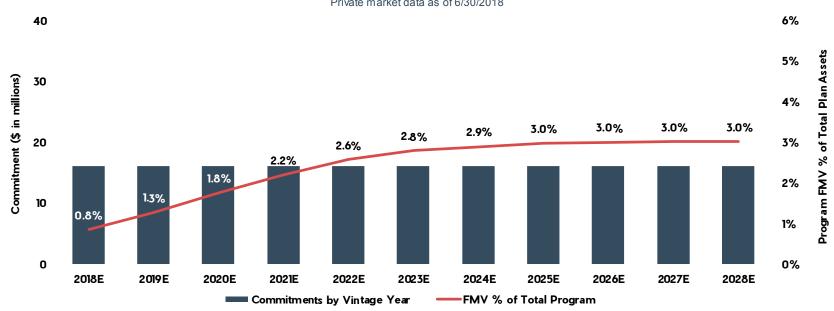
(\$ in millions)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Private Market Investments Commitments by Vintage Year	43	16	16	18	18	20	20	20	20	20	20
Contributions	-19	-23	-21	-19	-19	-19	-19	-20	-20	-20	-20
Distributions	13	11	14	18	23	26	27	27	26	24	24
Net Cash Flow	-6	-12	-7	-1	4	7	8	7	6	5	4
Fair Market Value	50	65	76	83	85	84	82	80	80	81	82
FMV % of Total Program	2.3%	2.9%	3.3%	3.4%	3.4%	3.2%	3.0%	2.9%	2.9%	2.9%	3.0%

 Following 2018 commitments, we recommend that the System commit approximately \$16 to \$20 million per year to real estate strategies.



Real Assets Portfolio Allocation Model

Private market data as of 6/30/2018



(\$ in millions)	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Private Market Investments Commitments by Vintage Year	16	16	16	16	16	16	16	16	16	16	16
Contributions	-9	-10	-12	-14	-15	-15	-16	-16	-16	-16	-16
Distributions	0	1	2	4	7	10	14	18	20	21	21
Net Cash Flow	-8	-9	-10	-10	-8	-5	-1	2	4	5	5
Fair Market Value	18	28	41	53	65	74	79	82	83	83	83
FMV % of Total Program	0.8%	1.3%	1.8%	2.2%	2.6%	2.8%	2.9%	3.0%	3.0%	3.0%	3.0%

• We recommend that the System commit approximately \$16 million per year to private real assets strategies, scaling the public exposure into private funds over time.



Summary

• We recommend using this pacing only as a guide, with actual investments dependent on high quality investment manager availability and market environment.

